

(b) Each tank car that requires a tank-head puncture-resistance system must have the letter “S” substituted for the letter “A” in the specification marking.

(c) Each tank car that requires a tank-head puncture-resistance system, a thermal protection system, and a metal jacket must have the letter “J” substituted for the letter “A” or “S” in the specification marking.

(d) Each tank car that requires a tank-head puncture-resistance system, a thermal protection system, and no metal jacket must have the letter “T” substituted for the letter “A” or “S” in the specification marking.

(e) Each tank car manufactured after March 16, 2009 to meet the requirements of §173.244(a)(2) or (3) or §173.314(c) or (d) shall be marked with the letter “I” following the test pressure instead of the letter “W”. (Example: DOT 105J600I).

[Amdt. 179-50, 60 FR 49077, Sept. 21, 1995, as amended by Amdt. 179-50, 61 FR 33256, June 26, 1996; 68 FR 75759, Dec. 31, 2003; 74 FR 1802, Jan. 13, 2009]

#### § 179.24 Stamping.

(a)(1) After July 25, 2012, to certify compliance with federal requirements, the tank manufacturer must install two identical permanent identification plates, one located on both inboard surfaces of the body bolsters of the tank car. One identification plate must be installed on the right side (AR) of the tank car, and the other must be installed on the back end left side (BL) body bolster webs so that each plate is readily accessible for inspection. The plates must be at least  $\frac{3}{32}$  inch thick and manufactured from corrosion resistant metal. When the tank jacket (flashing) covers the body bolster web and identification plates, additional identical plates must be installed on the AR and BL corners of the tank in a visible location. Tank cars built before July 25, 2012, may have the plate instead of or in addition to the stamping.

(2) Each plate must be stamped, embossed, or otherwise marked by an equally durable method in letters  $\frac{3}{16}$  inch high with the following information (parenthetical abbreviations may be used, and the AAR form reference is

to the applicable provisions of the AAR Specifications for Tank Cars, December 2000 edition (IBR, see §171.7 of this subchapter)):

(i) *Tank Manufacturer (Tank MFG)*: Full name of the car builder as shown on the certificate of construction (AAR form 4-2).

(ii) *Tank Manufacturer's Serial Number (SERIAL NO)*: For the specific car.

(iii) *AAR Number (AAR NO)*: The AAR number from line 3 of AAR Form 4-2.

(iv) *Tank Specification (SPECIFICATION)*: The specification to which the tank was built from line 7 of AAR form 4-2.

(v) *Tank Shell Material/Head Material (SHELL MATL/HEAD MATL)*: ASTM or AAR specification of the material used in the construction of the tank shell and heads from lines 15 and 16 of AAR Form 4-2. For Class DOT-113W, DOT-115W, AAR-204W, and AAR-206W, the materials used in the construction of the outer tank shell and heads must be listed. Only list the alloy (e.g., 5154) for aluminum tanks and the type (e.g., 304L or 316L) for stainless steel tanks.

(vi) *Insulation Material (INSULATION MATL)*: Generic names of the first and second layer of any thermal protection/insulation material applied.

(vii) *Insulation Thickness (INSULATION THICKNESS)*: In inches.

(viii) *Underframe/Stub Sill Type (UF/SS DESIGN)*: The design from Line 32 of AAR Form 4-2.

(ix) *Date of Manufacture (DATE OF MFR)*: The month and year of tank manufacture. If the underframe has a different built date than the tank, show both dates.

(3) When a modification to the tank changes any of the information shown in paragraph (a)(2) of this section, the car owner or the tank car facility making the modification must install an additional variable identification plate on the tank in accordance with paragraph (a)(1) of this section showing the following information:

(i) *AAR Number (AAR NO)*: The AAR number from line 3 of AAR Form 4-2 for the alteration or conversion.

(ii) All items of paragraph (a)(2) of this section that were modified, followed by the month and year of modification.

## § 179.100

(b) [Reserved].

[77 FR 37985, June 25, 2012]

### Subpart C—Specifications for Pressure Tank Car Tanks (Classes DOT-105, 109, 112, 114 and 120)

#### § 179.100 General specifications applicable to pressure tank car tanks.

##### § 179.100-1 Tanks built under these specifications shall comply with the requirements of §§ 179.100, 179.101 and when applicable, §§ 179.102 and 179.103.

##### § 179.100-3 Type.

(a) Tanks built under this specification shall be fusion-welded with heads designed convex outward. Except as provided in § 179.103 they shall be circular in cross section, shall be provided with a manway nozzle on top of the tank of sufficient size to permit access to the interior, a manway cover to provide for the mounting of all valves, measuring and sampling devices, and a protective housing. Other openings in the tank are prohibited, except as provided in part 173 of this chapter, §§ 179.100-14, 179.101-1, 179.102 or § 179.103.

(b) Head shields and shells of tanks built under this specification must be normalized. Tank car heads must be normalized after forming unless specific approval is granted for a facility's equipment and controls.

[29 FR 18995, Dec. 29, 1964. Redesignated at 32 FR 5606, Apr. 5, 1967, and amended by Amdt. 179-10, 36 FR 21344, Nov. 6, 1971; 65 FR 58632, Sept. 29, 2000; 74 FR 1802, Jan. 13, 2009]

##### § 179.100-4 Insulation.

(a) If insulation is applied, the tank shell and manway nozzle must be insulated with an approved material. The entire insulation must be covered with a metal jacket of a thickness not less than 11 gauge (0.1196 inch) nominal (Manufacturers' Standard Gauge) and flashed around all openings so as to be weather-tight. The exterior surface of a carbon steel tank, and the inside surface of a carbon steel jacket must be given a protective coating.

(b) If insulation is a specification requirement, it shall be of sufficient thickness so that the thermal conduct-

## 49 CFR Ch. I (10-1-14 Edition)

ance at 60 °F is not more than 0.075 Btu per hour, per square foot, per degree F temperature differential. If exterior heaters are attached to tank, the thickness of the insulation over each heater element may be reduced to one-half that required for the shell.

[29 FR 18995, Dec. 29, 1964. Redesignated at 32 FR 5606, Apr. 5, 1967, and amended by Amdt. 179-10, 36 FR 21344, Nov. 6, 1971; Amdt. 179-50, 60 FR 49077, Sept. 21, 1995]

##### § 179.100-6 Thickness of plates.

(a) The wall thickness after forming of the tank shell and heads must not be less than that specified in § 179.101, nor that calculated by the following formula:

$$t = Pd / 2SE$$

Where:

$d$  = Inside diameter in inches;

$E$  = 1.0 welded joint efficiency; except for heads with seams=0.9;

$P$  = Minimum required bursting pressure in p.s.i.;

$S$  = Minimum tensile strength of plate material in p.s.i., as prescribed in § 179.100-7;

$t$  = Minimum thickness of plate in inches after forming.

(b) If plates are clad with material having tensile strength properties at least equal to the base plate, the cladding may be considered a part of the base plate when determining thickness. If cladding material does not have tensile strength at least equal to the base plate, the base plate alone shall meet the thickness requirement.

(c) When aluminum plate is used, the minimum width of bottom sheet of tank shall be 60 inches, measured on the arc, but in all cases the width shall be sufficient to bring the entire width of the longitudinal welded joint, including welds, above the bolster.

[29 FR 18995, Dec. 29, 1964. Redesignated at 32 FR 5606, Apr. 5, 1967, and amended by Amdt. 179-10, 36 FR 21344, Nov. 6, 1971]

##### § 179.100-7 Materials.

(a) *Steel plate:* Steel plate materials used to fabricate tank shell and manway nozzle must comply with one of the following specifications with the indicated minimum tensile strength and elongation in the welded condition.